

Patent Claims

1. Method for the multi-fluorescence detection of fluorophores by means of a simultaneous measurement of the decay time of the fluorescences, where the excitation wave lengths for the individual fluorophores, delayed through an optical delay (4) in the range of sub-nanoseconds to some milliseconds, are conducted to the objects of examination (7) so that the fluorescences can be excited and detected one after the other and where, for the differentiation between at least two fluorophores in addition to their spectral characteristics, the decay behaviour of the fluorescence processes is examined by the displacement of electronic gates in the nanosecond range along a timing axis.
2. Method for the multi-fluorescence detection of fluorophores by means of a simultaneous measurement of the decay time of the fluorescences, where the excitation wave lengths for the individual fluorophores, delayed through an optical delay (4) in the range of sub-nanoseconds to some milliseconds, are conducted to the objects of examination (7) so that the fluorescences can be excited and detected one after the other.
3. Method for the multi-fluorescence detection of fluorophores by means of a simultaneous measurement of the decay time of the fluorescences where, for the differentiation between at least two fluorophores in addition to their spectral characteristics, the decay behaviour of the fluorescence processes is examined by the displacement of electronic gates in the nanosecond range along a timing axis.
4. Method according to Claim 1 and 3,
wherein

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the delay (4) is formed by light wave conductors.

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5. Method according to Claim 2 and 3
wherein
the electronic time gate is positioned in the maximum of the timing pattern of the life duration of the fluorescence signal, in order to selectively detect fast decaying fluorescence processes.
 6. Method according to Claim 2 and 3,
wherein
the electronic time gate is positioned in the fade-out of the timing pattern of the life duration of the fluorescence signal, in order to selectively detect slow decaying fluorescence processes.
 7. Method according to the Claims 1 to 3,
wherein
several different fluorescence colouring materials are detected in the liquid chromatography.
 8. Method according to the Claims 1 to 3,
wherein
fluorescence colouring materials are detected in multi-well plates.
 9. Method according to the Claims 1 to 3,
wherein
a multiple fluorescence detection is carried out on living/dead tissue:

10. Method according to the Claims 1 to 3,
wherein
a multiple fluorescence detection is carried out on planar, particular, fibrillar carriers
such as DNA- / protein-chip.
11. Method according to the Claims 1 to 3,
wherein
the method is image-rendering and the detector is a camera.
12. Method according to the Claims 1 to 3,
wherein
a multiple fluorescence detection and an end-point determination is carried out during
the PCR, particularly quantitative and multiplex PCR.
13. Method according to the Claims 1 to 3,
wherein
several fluorescence colouring materials are detected in electrophoresis gels,
electrophoresis capillaries and electrophoresis blots.

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